Intensive Training Course on Generation Expansion Planning using WASP-IV and GTMax
Organized by Chubu Electric Power Co.
February 10 – March 1, 2003, Manila, Philippines

SCHEDULE WEEK 1	**Course Staff:** Bruce Hamilton (Adica) Mladen Zeljko (EIHP)		Date: 2003-01-09 Version: 02

Day Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 9:45	Opening Ceremony and Introductions	FIXSYS Modules of WASP-IV *(-MZ-)*	CONGEN Module of WASP-IV *(-BH-)*	Use of Group Limitations for Energy-Limited Units and Environmental Constraints in WASP-IV *(-MZ-)*	Developing an Optimal Expansion Strategy in WASP *(-MZ-)*
9:45 - 10:30	Course Objectives *(-BH-)*	^ ^	CONGEN (Work Session)	^ ^	^ ^
10:30 - 10:45	*Coffee/Tea Break*				
10:45 - 11:30	PARTICIPANT PRESENTATIONS Overview of National Electricity System	VARSYS Modules of WASP-IV *(-MZ-)*	MERSIM Module of WASP-IV *(-MZ-)*	REMERSIM Module and Simulation File Handling in WASP-IV *(-BH-)*	Variable Expansion Case (Work Session)
11:30 - 12:15	Overview of WASP Model *(-MZ-)*	^ ^	^ ^	^ ^	^ ^
12:15-13:45	*Lunch Break*				
13:45 - 14:30	The WASP-IV User Interface *(-BH-)*	Pumped-Storage Hydro Representation in WASP-IV *(-MZ-)*	DYNPRO Module of WASP-IV *(-BH-)*	REPROBAT Module of WASP-IV *(-MZ-)*	Variable Expansion Case (Work Session)
14:30 - 15:15	WASP-IV User Interface (Work Session)	^ ^	^ ^	^ ^	^ ^
15:15 -15:30	*Coffee/Tea Break*				
15:30 - 16:15	LOADSY Module of WASP-IV *(-BH-)*	FIXSYS and VARYSYS Modules (Work Session)	Fixed Expansion Case (Work Session)	Fixed Expansion Case (Work Session)	Panel Review of Teams' Fixed Expansion Results (Course Staff)
16:15 - 17:00	LOADSY (Work Session)	^ ^	^ ^	^ ^	^ ^

SCHEDULE WEEK 2	**Course Staff:** Ed Bodmer (Adica) Tom Veselka (Argonne)			Date: 2003-01-09 Version: 02	

Day/Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 9:45	Economic and Financial Principles of Competitive Electricity Markets *(-EB-)*	Competitive Spot Market Design, Rules and Prices *(-EB-)*	Transmission and Prices in Competitive Markets: Congestion and Locational Prices *(- EB -)*	Contract Pricing, Merchant Pricing, and Other Financial Arrangements *(-EB-)*	Power Transfer Distribution Factors and DC Load Flow Calculations *(-TV-)* (Lecture/Work Session)
9:45 - 10:30	^ ^	^ ^	^ ^	GTMAx Firm Contacts, Interchange, and Power Exchanges *(-TV-)*	Capacity Valuation, Risk Analysis and Project Financing *(-EB-)*
10:30 - 10:45	*Coffee/Tea Break*				
10:45 - 11:30	GTMax Model Overview *(-TV-)*	Thermal Unit Representation *(-TV-)* (Lecture/Work Session)	Individual System Operation Versus Regional Markets *(-TV -)*	Firm Transmission Rights and Congestion Hedging *(-EB-)*	^ ^
11:30 - 12:15	GTMax Installation and Demonstration of Basic Features *(-TV-)*	GTMax Contractual Power Flows *(-TV-)* (Lecture/Work Session)	^ ^	GTMax Transmission Contracts *(-TV-)* (Lecture/Work Session)	Stranded Investment ad Long-term prices *(-EB-)*
12:15-13:45	*Lunch Break*				
13:45 - 14:30	GTMax Database and Case Structure *(-TV-)* (Lecture/Work Session)	Single Hydro Power Plant Representation *(-TV-)* (Lecture/Work Session)	Price volatility and option analysis in Electricity Markets *(-EB-)*	Overview of Ancillary Service Markets and Settlement Process *(-EB-)*	Capacity Expansion and Connecting WASP Results to GTMax *(-TV-)*
14:30 - 15:15	GTMax Building Blocks *(-TV-)* (Lecture/Work Session)	Hydro Cascades *(-TV-)* (Lecture/Work Session)	Power Exchange Organizations, ISO, and RTO and Transmission Tariffs *(-EB-)*	GTMax Ancillary Service Representation *(-TV -)* (Lecture/Work Session)	Live Power Market Simulations *(-TV-)*
15:15 -15:30	*Coffee/Tea Break*				
15:30 - 16:15	Demand and Spot Market Node Representation *(-TV-)* (Lecture/Work Session)	GTMax Pumped-Storage Representation *(-TV-)* (Lecture/Work Session)	Available Transmission Capability Calculations In GTMax *(-TV-)* (Lecture/Work Session)	Data Visualization *(-TV-)* (Lecture/Work Session)	Market Power, Bidding Strategies and Lessons Learned *(-EB and TV-)*
16:15 - 17:00	Running GTMax & Viewing Results *(-TV-)* (Lecture/Work Session)	Importing & Exporting Data *(-TV-)* (Lecture/Work Session)	^ ^	Identifying Potential Market Winners & Losers with GTMax *(-TV-)*	^ ^

	SCHEDULE WEEK 3	Course Staff: **Bruce Hamilton (Adica)** Tom Veselka (Argonne) Mary Ongenae (Adica)		Date: 2003-01-09 Version: 02

Day Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 9:45	Discussion of schedule for final week *(-TV-)*	Hands-on Computer Work Session on Configuring GTMax for the Philippine Utility System			Analysis of Results and Presentation Preparation
9:45 - 10:30	Overview of the Philippine Transmission System and Load Center *(Course Participants)*	^ ^	^ ^	^ ^	^ ^
10:30 - 10:45	*Coffee/Tea Break*	*Coffee/Tea Break – Live Simulation Bid Submissions*			*Coffee/Tea Break*
10:45 - 11:30	Current and Future Regulatory Structure of the Philippine Power Sector *(Course Participants)*	Hands-on Computer Work Session on Configuring GTMax for the Philippine Utility System			Presentation of Model Results *(Course Participants)*
11:30 - 12:15	Potential Issues to Be Analyzed with GTMax *(Group Discussions - TV)*	^ ^	^ ^	^ ^	^ ^
12:15-13:45	*Lunch Break*				
13:45 - 14:30	Tips on Network Design and Data Management *(-MO-)*	Hands-on Computer Work Session on Configuring GTMax for the Philippine Utility System		Analysis of Results and Presentation Preparation	Results of Live Market Simulations *(- MO & TV -)*
14:30 - 15:15	Philippine Network Design *(Group Discussion – MO/TV)*	^ ^	^ ^	^ ^	^ ^
15:15 -15:30	*Coffee/Tea Break*	*Coffee/Tea Break – Live Simulation Bid Submissions*		*Coffee/Tea Break*	*Coffee/Tea Break*
15:30 - 16:15	Philippine Network Design (Continued) *(Group Discussion – MO/TV)*	Hands-on Computer Work Session on Configuring GTMax for the Philippine Utility System		Analysis of Results and Presentation Preparation	Discussion of Future Activities
16:15 - 17:00	GTMax Live Day-Ahead Market Contest Rules *(-TV-)*	^ ^	^ ^	^ ^	Closing Ceremony